REMARKS/ARGUMENTS

Reconsideration and continued examination of the above-identified application are respectfully requested. Claims 1 - 3, 7 - 13, 15 - 19, 21 - 27, and 30 - 53 are pending in the application. Claims 4, 5, 6, 14, 20, 28, and 29 are currently canceled. Claims 30 - 53 are presently withdrawn from consideration. No new claims are added.

Claims 1, 15, 16, 19, 21 and 24-27 are currently amended.

Claim 1 is amended to clarify in the preamble the recitation of a method of providing product consistency for a particulate material (e.g., see paragraph [0017]), adds the recitation of dependent claim 14 regarding subject matter on the step of maintaining the at least one interfacial potential property value, and clarifies that the particulate material is a carbon or silica, which is supported by original claims 5 and 7 and paragraph [0037] of the present application, and elsewhere. Claim 19 is amended to remove reference to the carbonaceous material. In view of the addition of the recitations of claim 14 to claim 1, claims 15, 16, 21, and 24-27 have been amended to depend directly from claim 1. In addition, claim 21 has been amended to add clarifications regarding the interfacial potential absorptometry method, such as supported at paragraphs [0047], [0062], [0065], [0067], and [0074] and elsewhere in the present application. Claim 24 has been amended to add clarifications regarding the wicking rate method used as a measure of the interfacial potential of the particulate material, such as supported at paragraphs [0048] and [0069]-[0070], and elsewhere in the present application. Also, claim 25 has been amended to add clarifications regarding the yield point method, such as supported at paragraph [0049], and elsewhere in the present application. Claim 26 has been amended to add clarifications regarding the interfacial potential vapor adsorption method, such as supported at paragraph [0043], and elsewhere in the present application.

Accordingly, full support exists in the present application for the amendments and no questions of new matter should arise.

Rejection of claims 21-23 and 25-26 under 35 U.S.C. §112, second paragraph, for indefiniteness

At page 3 of the Office Action dated April 17, 2008, claims 21-23 and 25-26 were rejected under 35 U.S.C. §112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The Examiner stated that a search of the art reveals that "interfacial potential absorptometry", "interfacial potential vapor absorption" [*sic*] and "yield point" are methods that are not readily recognized in the art and that clarification could be achieved by providing corroborating evidence, such as journal articles, describing these methods. This rejection is respectfully traversed.

The applicants respectfully submit that claims 21-23 and 25-26 define subject matter with a reasonable degree of precision and particularity sufficient for purposes of complying with the requirements of 35 U.S.C. §112, second paragraph. Those skilled in the art can ascertain whether a particular embodiment would, or would not be, within the scope of any of claims 21-23 and 25-26, in view of at least the following reasons.

As indicated in M.P.E.P. § 2173.05(a), the meaning of a term used in a claim should be apparent from the known tests *or* from the application and drawings at the time the application was filed. In making this indefiniteness rejection, however, the Examiner appears to suggest that a source of meaning for the claim terms at issue must be "apparent from the prior art." The Office Action does not indicate whether the present specification was referenced by the Examiner in interpreting the claim terms at issue. Furthermore, M.P.E.P. § 2173.05(a) also explains that the patent laws allow an inventor to be his/her own lexicographer with respect to

their presented claims, and that it is not only permissible, but often desirable, for an applicant to use new terms that are more precise in describing and defining a new invention.

In this regard, and as explained in the applicants' previous response of April 30, 2007, the claim terminology "interfacial potential," is specifically defined in at paragraph [0024] of the present application.

Regarding the determination of the value of "interfacial potential" by an *absorptometry method*, such as recited in present claim 21, the present specification provides specific guidance on what is meant in this regard in paragraphs [0046] to [0047], and more specific guidance via working examples, such as described in paragraphs [0062], [0065], and [0072] - [0074]. In addition, claim 21 has been amended to add further details on the claimed subject matter, which even more specifically and particularly sets forth what applicants regard as their invention. Claims 22-23, which depend from claim 21, have a reasonable degree of precision and particularity for purposes of 35 U.S.C. §112, second paragraph, for at least the same reasons as claim 21 from which they depend.. Similarly, the determination of the value of "interfacial potential" by a *yield point method* or a *vapor adsorption method*, such as recited in present claims 25 and 26, is described and illustrated in paragraphs [0049] and [0043], respectively, of the present application. In addition, claims 25 and 26 has been amended to add further details on the claimed subject matter, which even more specifically and particularly sets forth what applicants regard as their invention.

In view of at least the above, the applicants submit that claims 21-23, 25, and 26 set forth what applicants' regard as their invention with a reasonable degree of precision and particularity for compliance with 35 U.S.C. §112, second paragraph, and, therefore, this rejection should be withdrawn.

Rejection of claims 1-8 and 28-29 under 35 U.S.C. §102(b) over Okado et al., U.S. Pat. No. 5,620,824, or Wideman et al., U.S. Pat. No. 6,348,539

At page 3 of the most recent Office Action, claims 1-8 and 28-29 were rejected under 35 U.S.C. §102(b) as being anticipated by Okado et al. (U.S. Pat. No. 5,620,824) or Wideman et al. (U.S. Pat. No. 6,348,539). The Examiner stated that Okado et al. teaches a method producing a toner comprising organic resin particles, and the claimed "morphological values" have been read on the particle size and the claimed "interfacial potential properties" on the volume resistivity of organic resin particles taught by Okado et al. The Examiner also states that Wideman et al. teaches a method of making a composition comprising carbon black, silica and metal oxide particles in specific size ranges, and torque and BET values monitored to determine the desired characteristics of the composition and have been read on the claimed combination of "morphological values" and "interfacial potential properties." This rejection is respectfully traversed.

The present invention is directed to resolving a problem associated with particulate material production in which materials that are seemingly made "within "spec" with respect to one or more measures of morphology, such as particles size, surface area, structure, porosity, etc., nonetheless do not perform consistently as expected in applications. As such, the "within spec" assessment of a particulate material from a morphological standpoint can represent a "false positive" to some extent. Until now, the industry was not entirely clear why the product would not perform consistently even though the particulate material was within morphological specifications. Efforts to determine the source of such problems only after they emerge in products incorporating the particulate material are inefficient and often both time consuming and expensive. Trial-and-error approaches comparing the effects of adjustments made in the particulate manufacturing process with differences observed in the ultimate product containing

the particulate material may resolve the product level problem within a limited context. However, such an approach does not provide a mechanism for intercepting problems at the particulate production level before problems arise in end products that incorporate the particulate material. The present investigators appreciated that the problem of particulate materials that are "within spec," but perform inconsistently in application, ideally would be addressed as part of a quality control (QC) and/or quality assurance (QA) program implemented at the particulate production level, *before* end-products become involved. Moreover, the present investigators have developed a solution to the problem in this regard, which is reflected in their present claims. The present invention not only provides quality control and/or quality assurance for the particulate material but may also make it easier for a customer to obtain consistency in their end products and any intermediate products containing the particulate material, such as polymer products, elastomeric products, inks, coatings, toners, and the like.

The anticipation rejection based on Okado et al. or Wideman et al. was not applied against claim 14. Claim 14 has been added to claim 1 in the present amendment. Therefore, claim 1 and the claims dependent on claim 1 are not anticipated for at least this reason.

In addition, Okado et al. also fails to teach or suggest that the step of maintaining at least one interfacial potential property value of the particulate material within a second target range is performed on particulate material that is *carbon black or silica* as currently recited in claim 1. Okado et al. teaches volume resistivity is only relevant to the *organic resin particles* (see col. 7, lines 3-22). Okado et al. does not teach volume resistivity is or should be analyzed for carbon or silica, nor what to do with such measurements if they were attempted and taken (for sake of argument only). Therefore, Okado et al. does not anticipate any of the present claims.

Wideman et al. teaches measuring surface area of silica using a conventional BET method as only a morphological property measurement (col. 4, lines 41-48). Torque is measured

by Wideman et al. on *a compounded rubber sample* (col. 8, line 55 to col. 9, line 4) and not a particulate material itself as recited in claim 1. Thus, in at least the latter respect concerning torque measurements, Wideman et al. differs from the present claims for similar reasons as the Reszler reference, which had been previously applied against the claims by the Examiner before being withdrawn in the Examiner's previous Office Action (and after the applicants' submission of an Appeal Brief on January 16, 2008). Therefore, Wideman et al. does not anticipate any of the present claims.

Therefore, this rejection should be withdrawn.

Rejection of claims 1-5, 7-8, 27-29 under 35 U.S.C. §102(e) over Barthel et al., U.S. Pat. No. 6,800,413

At page 4 of the Office Action, claims 1-5, 7-8 and 27-29 were rejected under 35 U.S.C. §102(e) as being clearly anticipated by Barthel et al. (U.S. Pat. No. 6,800,413). The Examiner asserts that Barthel et al. shows a method of preparing carbon black and silica at the specific BET – method surface area (DIN 66131 and 66132) where these characteristics are determined by gas adsorption or inverse gas chromatography. The Examiner further stated that Barthel et al. has been read on the claimed combination of "morphological values" and "interfacial potential properties." This rejection is respectfully traversed.

This anticipation rejection based on Barthel et al. also was not applied against claim 14. As indicated, the recitations of claim 14 have been added to claim 1 in the present amendment.

In addition, Barthel et al. relates to determining surface area by BET analysis according to standard methods DIN 66131 and 66132 (see col. 2, lines 53-55; col. 9, lines 30-34; col. 10, lines 16-26, 34-36, 45-48; col. 14, lines 22-24). As well known in the industry, measurement of gas adsorption by these DIN standards 66131 and 66132 involves measuring the adsorption of nitrogen or krypton as an "inert gas." This provides only a measurement of surface area. These standards

used for BET analysis do not provide a measurement of interfacial potential, such as explained in paragraph [0043] of the present application. Barthel et al. does not teach or suggest how a standard BET analysis according to DIN 66131 and 66132 may be modified to provide a measure of interfacial potential as recited in the present claims.

Therefore, this rejection should be withdrawn.

Rejection of claims 9-20 under 35 U.S.C. §103(a) over Okado et al., U.S. Pat. No. 5,620,824, Barthel et al., U.S. Pat. No. 6,800,413, or Wideman et al., U.S. Pat. No. 6,348,539

At page 5 of the Office Action, claims 9-20 were rejected under 35 U.S.C. §103(a) as being unpatentable over Okado et al. (U.S. Pat. No. 5,620,824), Barthel et al. (U.S. Pat. No. 6,800,413), or Wideman et al. (U.S. Pat. No. 6,348,539). The Examiner stated that Okado et al., Barthel et al. and Wideman et al. are silent to the claimed ranges of the morphological values being within about 10%, the interfacial potential property value within about 50% and adjusting the process variables to achieve the desired properties. The Examiner stated that In re Boesch (205 USPQ 215) decided that optimization of a result effective variable is ordinarily within the skill of the art. The Examiner also stated that in a manufacturing process the selection of the acceptable range of product is a result effective variable having the well known and predictable result of providing a product within the manufacturing specification. This rejection is respectfully traversed.

None of Okado et al., Barthel et al., or Wideman et al. teach or suggest that interfacial potential of carbon black or silica is a results-effective parameter. The Examiner did not identify in the Office Action where any one of these references teach or suggest that measurement or its significance and utility. As the PTO specifically instructs in M.P.E.P. §2144.05 under the heading "Only Result-Effective Variables Can Be Optimized":

A particular parameter must first be recognized as a result-effective variable,

> i.e., a variable which achieves a recognized result, before the determination of the optimum or workable ranges of said variable might be characterized as routine experimentation. *In re Antonie*, 559 F.2d 618, 195 USPQ 6 (CCPA 1977) ...

The Examiner's reasons for this rejection repeatedly refer to morphological properties taught in the three relied upon references, which are different from an interfacial property as explained in the present application. Therefore, the Examiner's reliance on the In re Boesch case is not on point.

As described above and in the present application, "at least one morphological value" and "at least one interfacial potential property value" as defined are different from each other. None of Okado et al., Wideman et al., or Barthel et al. appreciates the importance of maintaining at least one interfacial potential property value of a filler within a target range, in addition to maintaining at least morphological value of the filler within a target range. In particular, none of Okado et al., Wideman et al., or Barthel et al. teaches, suggests or predicts success of the present method including the recited step of maintaining at least one interfacial potential property value of a particulate material that is carbon black or silica, comprising i) determining at least one interfacial property value of the particulate material; and ii) adjusting at least one process variable of a process for producing the particulate material, wherein the adjustment maintains the interfacial potential property value within the second target range. Further, present claim 1 recites that this method is applied to particulate material that is carbon black or silica.

As demonstrated in the working examples of the present specification, morphological values can appear to indicate that a particulate material is within spec, while the added interfacial potential property measurements reveal that the particulates perform inconsistently. As discussed previously herein (and in the present application), implementation of quality control at the filled product (compounded rubber) level, such as in Wideman et al., overlooks the potential serious

problem of particulates made "within spec" which nonetheless perform inconsistently in applications. However, the method of the present invention provides product consistency by maintaining both at least one morphological value as well as at least one interfacial potential property value of the particulate material that is carbon black or silica. In this way, it has unexpectedly been found that product quality assurance (QA) and quality control (QC) are vastly improved if, along with measurements of morphology, measurements of values that reflect the interfacial potential of the particulate material are also made.

As also indicated, Okado et al. refers to particles sizes and volume resistivity of organic resin particles, not for carbon black and silica, nor the use of those properties in a method as recited in present claim 1. As also explained above, Wideman et al. teaches measuring surface area of silica using a conventional BET method as a morphological property measurement and torque is measured on *a compounded rubber sample,* and not a particulate material *per se* as recited in claim 1. As also indicated, Barthel et al. does not teach or suggest how the standard BET analysis according to DIN 66131 and 66132, used only to measure surface area as a morphological property, may be modified to provide a measure of interfacial potential as defined in the present application.

In view of at least the above reasons, claims 9-20 are not prima facie obvious in view of Okado et al., Barthel et al., and/or Wideman et al.

Therefore, this rejection should be withdrawn.

Rejection of claim 24 under 35 U.S.C. §103(a) over Okado et al., U.S. Pat. No. 5,620,824, Barthel et al., U.S. Pat. No. 6,800,413, or Wideman et al., U.S. Pat. No. 6,348,539

At page 6 of the Office Action, claim 24 is rejected under 35 U.S.C. §103(a) as being unpatentable over Okado et al., Barthel et al., or Wideman et al. The Examiner stated that these references are silent as to adjusting the process variable to achieve the desired characteristics of

the particles and the specific testing by "wicking rate." The Examiner again referred to the In re Boesch decision and asserted that testing a particulate material by the speed or distance the particulate solution "wicks" is notoriously well known in the art (e.g. for example paper chromatography). This rejection is respectfully traversed.

Claim 24 recites a wicking rate method used as a measure of the interfacial potential of the particulate material that is carbon black or silica, wherein the interfacial potential property value is determined by a wicking rate method *comprising determining a difference in wicking rate for two or more liquids into equivalent packed columns of the particulate material* itself. Example 4 (paras. [0069]-[0070]) in the present application illustrates this embodiment.

The Examiner has admitted that Okado et al., Barthel et al., or Wideman et al. are silent as to adjusting the process variable to achieve the desired characteristics of the particles and the specific testing by "wicking rate." Without citing any evidence, the Examiner refers to "notoriously well known" testing of the speed or distance that a particulate solution "wicks" (e.g., as allegedly used for paper chromatography), and apparently equates such testing with the wicking method recited in present claim 24. However, any measurement of wicks in paper chromatography does not correspond to measurement of interfacial potential by wicking rates such as described in paragraph [0048] of the present application, which is reflected in claim 24. Thus, the Examiner's assumption that any "notoriously well known" prior measurement of "wicks" is the same method as presently claimed is factually incorrect as can be seen by comparing the wicking rate test of the present invention with paper chromatography. How can paper chromatography be used to test the wicking rate of particulate material itself? Further, the Examiner has not set forth an apparent reason why one of ordinary skill in the art would have considered modifying any "notoriously well known" wicking tests to duplicate the wicking rate method recited in present claim 24 used to determine an interfacial potential of carbon black or

silica.

In view of at least the above reasons, claim 24 is not prima facie obvious over Okado et al., Barthel et al., or Wideman et al.

Therefore, this rejection should be withdrawn.

CONCLUSION

In view of the foregoing remarks, the applicant respectfully requests the reconsideration of this application and the timely allowance of the pending claims.

If there are any other fees due in connection with the filing of this response, please charge the fees to Deposit Account No. 03-0060. If a fee is required for an extension of time under 37 C.F.R. § 1.136 not accounted for above, such extension is requested and should also be charged to said Deposit Account.

Respectfully submitted,

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